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JAN 16 2007

PATENT APPLICATION

ATTORNEY DOCKET NO. 100201747-1

(HDP#6215-000130/US)

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Nicos A. VEKIARIDES

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Confirmation No.: 4607

Application No.: 09/664,449

JAN 18 2007

Examiner: Hussein A. El-Chant

Filing Date: Sept. 18, 2000

Technology Center 2100

Group Art Unit: 2157

Title: INTERNET PROTOCOL DATA MIRRORING

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

LETTER PROVIDING AMENDED SUMMARY SECTION OF APPEAL BRIEF

Sir:

Transmitted herewith is a Letter Providing an Amended Summary Section of an Appeal Brief in this application with respect to the Notification of Non-Compliant Appeal Brief (dated November 15, 2006) and to the Notice of Appeal filed on August 25, 2006.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

(x) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

(x) one month	\$120.00
() two months	\$450.00
() three months	\$1020.00
() four months	\$1590.00

() The extension fee has already been filled in this application.

() (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-0750 the sum of \$120.00. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

() I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450. Date of Deposit: _____

OR

(X) I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number (571) 273-8300 on Jan. 16, 2007

Number of pages:

Typed Name: Cate Malycke

Signature: Cate Malycke

Rev 12/04 (Aplbrief)

Respectfully submitted,

Nicos A. VEKIARIDES

By

Thomas S. Auchterlonie

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Date: January 16, 2007

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JAN 16 2007

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Nicos A. VEKIARIDES CONF: 4607
SERIAL NO.: ~~09/664,449~~ GROUP: 2157
FILED: September 18, 2000 EXAMINER: Hussein A. El-Chanti
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LETTER PROVIDING AMENDED
SUMMARY SECTION OF APPEAL BRIEF,
PER 37 C.F.R. §41.37(c)(1)(v)

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January 16, 2007

Sir:

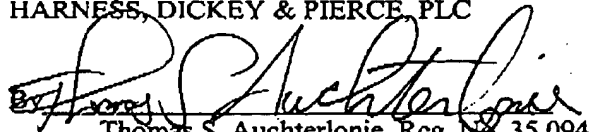
Responsive to the Notice of Non-Compliant Appeal Brief dated November 15, 2006, this is to provide an Amended Summary Section of an Appeal Brief under 37 C.F.R. § 41.37(c)(1)(v). According to the Manual of Patent Examining Procedure (MPEP) § 1205.03, instead of an Amended Appeal Brief, a paper (such as the present document) providing an Amended Summary should be submitted in circumstances such as the present circumstances.

Please consider the Amended "V. Summary Of Claimed Subject Matter" that follows as a replacement for the corresponding section in Appellant's Appeal Brief filed August 25, 2006.

A fee for a one (1) month extension of time is due. Hence, concurrently submitted are an Extension of Time Request Document and an authorization to charge Deposit Account No. 08-0750 for the associated extension of time fee.

Otherwise, no fee is believed due. However, should that believe be mistaken, concurrently but separately filed is a transmittal letter that includes an authorization to charge Deposit Account No. 08-0750 for any requisite governmental fee associated with the filing of the present document.

Respectfully submitted,
HARNESS, DICKEY & PIERCE, PLC


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(AMENDED)

V. SUMMARY OF CLAIMED SUBJECT MATTER**INDEPENDENT CLAIM 1**

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a method is provided by which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B, 12A-12D, 12F & 13A-13E, and corresponds, e.g., to the method of claim 1 for mirroring data in a computer network (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such a method as in claim 1 comprises: establishing (e.g., block 1202 & page 25; e.g., block 1302 & page 33) at least one connection between a local storage server (e.g., 106; e.g., see page 8, lines 17-26) and a mirror storage server (e.g., 108; e.g., see page 8, lines 26-29); receiving (e.g., block 1204 & page 25; e.g., block 1306 & page 33) a primary storage request from a network host at the local storage server; sending (e.g., block 1206 & page 25; e.g., block 1308 & page 33) a mirror storage request across the established at least one connection from the local storage server to the mirror storage server, wherein the mirror storage request corresponds to the received primary storage request; processing (e.g., block 1208 & page 26; e.g., block 1312 & page 34) the mirror storage request at the mirror storage server; sending (e.g., block 1210 & page 26; e.g., block 1322 & page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) at regular

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first intervals from the local storage server to the mirror storage server; sending (e.g., block 1212 & page 26; e.g., block 1324 & page 34) a second heartbeat signal (e.g., 408 & page 19, line 8) at regular second intervals from the mirror storage server to the local storage server; and monitoring (e.g., block 1214 & page 26; e.g., block 1224 & page 27; e.g., block 1238 & page 30) reception of the first heartbeat signal and the second heartbeat signal for interruption in the regular receipt thereof, respectively.

INDEPENDENT CLAIM 24

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a method is provided by which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B & 13A-13E, and corresponds, e.g., to the method of claim 24 for bi-directional mirroring of data in computer networks (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such a method as in claim 24 comprises: establishing (e.g., block 1302 & page 33) a first connection between a local storage server (e.g., 106; e.g., see page 8, lines 17-26) and a remote storage server (e.g., 108; e.g., see page 8, lines 26-29); establishing (e.g., block 1304; e.g., see page 33) a second connection between the local storage server and the remote storage server; receiving (e.g., block 1306 & page 33) a first local storage request from a first network host at

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the local storage server; sending (e.g., block 1308 & page 33) a first local mirror storage request from the local storage server across the first connection, wherein the first local mirror storage request corresponds to the first received local storage request; receiving (e.g., block 1310; e.g., see page 33) the first local mirror storage request at the remote storage server; storing (e.g., block 1312; e.g., see page 34) data received in the first local mirror storage request in at least one remote storage device coupled to the remote storage server; receiving (e.g., block 1314; e.g., see page 34) a first remote storage request from a second network host at the remote storage server; sending (e.g., block 1316; e.g., see page 34) a first remote mirror storage request from the remote storage server across the second connection, wherein the first remote mirror storage request corresponds to the received first remote storage request; receiving (e.g., block 1318; e.g., see page 34) the first remote mirror storage request at the local storage server; and storing (e.g., block 1320; e.g., see page 34) data received in the first remote mirror storage request in at least one local storage device coupled to the local storage server; sending (e.g., block 1322; e.g., see page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) from the local storage server to the mirror storage server; sending (e.g., block 1324; e.g., see page 34) a second heartbeat signal (e.g., 408 & page 19, line 8) from the remote storage server to the local storage server; and monitoring (e.g., block 1326 & page 35; block 1338 & page 36) reception of the first heartbeat signal and the second heartbeat signal for interruption in the regular receipt thereof, respectively.

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INDEPENDENT CLAIM 32

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a system is provided by which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B, 12A-12D, 12F & 13A-13E, and corresponds, e.g., to the system of claim 32 for mirroring data in a computer network (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such a system as in claim 32 comprises: a local storage server (e.g., 106; e.g., see page 8, lines 17-26) that receives (e.g., block 1204 & page 25; e.g., block 1306 & page 33) a storage request and outputs a mirror storage request, wherein said local storage server outputs ((e.g., block 1210 & page 26; e.g., block 1322 & page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) at regular first intervals; and a mirror storage server that receives said mirror storage request, wherein said mirror storage server processes (e.g., block 1208 & page 26; e.g., block 1312 & page 34) said mirror storage request, wherein said mirror storage server outputs a response corresponding to said mirror storage request to said local storage server, wherein said mirror storage server outputs (e.g., block 1212 & page 26; e.g., block 1324 & page 34) a second heartbeat signal (e.g., 408 & page 19, line 8) at regular second intervals and monitors (e.g., block 1338 & page 36) reception of said first heartbeat signal for interruption in the regular receipt

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thereof; wherein said local storage server monitors reception of said second heartbeat signal for interruption in the regular receipt thereof.

INDEPENDENT CLAIM 39

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a computer program product that includes a computer useable medium is provided via execution of which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B, 12A-12D, 12F & 13A-13E, and corresponds, e.g., to the computer program product that includes a computer useable medium of claim 39, the computer program logic recorded thereon enabling at least one processor to mirror data in a computer network (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such computer program logic recorded on a computer program product that includes a computer useable medium as in claim 39 comprises: means for enabling the processor to establish (e.g., block 1202 & page 25; e.g., block 1302 & page 33) at least one connection between a local storage server (e.g., 106; e.g., see page 8, lines 17-26) and a mirror storage server (e.g., 108; e.g., see page 8, lines 26-29); means for enabling the processor to receive a primary storage request (e.g., block 1204 & page 25; e.g., block 1306 & page 33) from a network host at the local storage server; means for enabling the processor to send (e.g.,

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block 1206 & page 25; e.g., block 1308 & page 33) a mirror storage request across the established at least one connection from the local storage server to the mirror storage server, wherein the mirror storage request corresponds to the received primary storage request; means for enabling the processor to send (e.g., block 1210 & page 26; e.g., block 1322 & page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) at regular first intervals from the local storage server to the mirror storage server; and means for enabling the processor to send (e.g., block 1212 & page 26; e.g., block 1324 & page 34) a second heartbeat signal (e.g., 408 & page 19, line 8) at regular second intervals from the mirror storage server to the local storage server; and means for monitoring (e.g., block 1214 & page 26; e.g., block 1224 & page 27; e.g., block 1238 & page 30; e.g., block 1326 & page 35; block 1338 & page 36) reception of at least one the first heartbeat signal and the second heartbeat signal for interruption in the regular receipt thereof, respectively.

INDEPENDENT CLAIM 48

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a method is provided by which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B, 12A-12D, 12F & 13A-13E, and corresponds, e.g., to the method of claim 48 for

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mirroring data in a computer network (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such a method as in claim 48 comprises: establishing (e.g., block 1202 & page 25; e.g., block 1302 & page 33) at least one connection between a local storage server (e.g., 106; e.g., see page 8, lines 17-26) and a mirror storage server (e.g., 108; e.g., see page 8, lines 26-29); receiving (e.g., block 1204 & page 25; e.g., block 1306 & page 33) a primary storage request from a network host at the local storage server; sending (e.g., block 1206 & page 25; e.g., block 1308 & page 33) a mirror storage request across the established at least one connection from the local storage server to the mirror storage server, wherein the mirror storage request corresponds to the received primary storage request; processing (e.g., block 1208 & page 26; e.g., block 1312 & page 34) the mirror storage request at the mirror storage server; sending (e.g., block 1210 & page 26; e.g., block 1322 & page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) at regular first intervals from the local storage server to the mirror storage server; sending (e.g., block 1212 & page 26; e.g., block 1324 & page 34) a second heartbeat signal (e.g., 408 & page 19, line 8), independent (e.g., see page 19, lines 9-11; e.g., see page 22, lines 11-17) of the first heartbeat signal, at regular second intervals from the mirror storage server to the local storage server; and monitoring (e.g., block 1214 & page 26; e.g., block 1224 & page 27; e.g., block 1238 & page 30; e.g., block 1326 & page 35; block 1338 & page 36) reception of at least one the first heartbeat signal and the second heartbeat signal for interruption in the regular receipt thereof, respectively.

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INDEPENDENT CLAIM 49

To facilitate reliable data mirroring over a network between a local storage server and a mirror storage server, network failures should be detected. Accordingly, a method is provided by which heartbeat signals are exchanged bi-directionally between the local and mirror storage servers. An interruption in the regular reception of either heartbeat signal can be indicative of a network failure.

An example embodiment of the present invention will be discussed in the contexts of Figs. 1, 2B, 12A-12D, 12F & 13A-13E, and corresponds, e.g., to the method of claim 49 for mirroring data in a computer network (e.g., 100; e.g., see page 7, line 20, to page 8, line 16). Such a method as in claim 49 comprises: establishing (e.g., block 1202 & page 25; e.g., block 1302 & page 33) at least one connection between a local storage server (e.g., 106; e.g., see page 8, lines 17-26) and a mirror storage server (e.g., 108; e.g., see page 8, lines 26-29); receiving (e.g., block 1204 & page 25; e.g., block 1306 & page 33) a primary storage request from a network host at the local storage server; sending (e.g., block 1206 & page 25; e.g., block 1308 & page 33) a mirror storage request across the established at least one connection from the local storage server to the mirror storage server, wherein the mirror storage request corresponds to the received primary storage request; processing (e.g., block 1208 & page 26; e.g., block 1312 & page 34) the mirror storage request at the mirror storage server; sending (e.g., block 1210 & page 26; e.g., block 1322 & page 34) a first heartbeat signal (e.g., 406 & page 19, line 8) using a connectionless protocol (e.g., page 19, lines 6-14) at regular first intervals from the local storage server to the mirror storage server; sending (e.g., block 1212 & page 26; e.g., block 1324 & page

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34) a second heartbeat signal (e.g., 408 & page 19, line 8) using a connectionless protocol (e.g., page 19, lines 6-14) at regular second intervals from the mirror storage server to the local storage server; and monitoring (e.g., block 1214 & page 26; e.g., block 1224 & page 27; e.g., block 1238 & page 30; e.g., block 1326 & page 35; block 1338 & page 36) reception of at least one the first heartbeat signal and the second heartbeat signal for interruption in the regular receipt thereof, respectively.

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